

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE  
THIRD SET OF INFORMATION REQUESTS FROM UWUA LOCAL 273  
D. T. E. 05-27

Date: June 30, 2005

Responsible: Danny G. Cote, General Manager

UWUA-3-3 Please explain any changes the company expects will be made to the supervisory structure described in response to UWUA 3-2, in connection with the SIR program and the accelerated rate of main replacement that is proposed under the SIR program.

Response: Bay State expects no changes to the supervisory structure in the Company in connection with the SIR program and the accelerated rate of main replacement that is proposed under the SIR program.

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D. T. E. 05-27

Date: June 30, 2005

Responsible: John E. Skirtich, Consultant (Revenue Requirements)

UWUA-3-12 (Skirtich, p. 19) Please explain what Mr. Skirtich means by “premiums . . . do not have a significant load for profits,” quantifying the actual profit loadings by NICL.

Response: A commercial market insurance company will develop a premium based on the following components:

- Expected loss
- Capital Allocation Charge
- Profit Load
- Program Expenses.

On a combined basis these expenses and profit loadings can add up to an additional 40% above expected loss. NiSource Insurance Corporation Limited has expenses that range from 5% to 7%. The workers compensation excess indemnity premium components are provided below. The summary reflects a total expense load of 3.33% in addition to the actuarial expected loss pick of \$6,346,326.

<b>Premium Components</b>	<b>\$Amount</b>	<b>%Total</b>
Expected Loss-WC Indemnity	6,346,326	96.67%
Expenses	218,426	3.33%
<b>Total Excess Indemnity Premium</b>	<b>6,564,752</b>	<b>100.00%</b>

The premium components demonstrate the cost efficiency for Bay State transferring their risk to a related captive instead of the commercial insurance market.

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Responsible: John E. Skirtich, Consultant (Revenue Requirements)

UWUA-3-15 (Skirtich, p. 26) (a) In Mr. Skirtich's opinion (or Bay State's opinion), why would bad debt expense, as a percentage of revenues, be declining over the period 2002 to 2004?

(b) To the extent Mr. Skirtich believes this is simply a result of the denominator ("firm billed revenue") increasing substantially from 2002 to 2004, does Mr. Skirtich (or Bay State) have an explanation of why write-offs declined from \$9.9 M (2003) to \$9.1 M (2004)?

(c) Please provide the "% of write-offs to revenue" for the years 1999, 2000 and 2001, as well as for the first five months of 2005.

Response: (a) There are a variety of reasons that charge offs as a percent of revenue could decline over this period of time; increase in customer assistance, improved credit and collection activity, swing in tariff to transportation service, etc. Furthermore, charge-offs lag as a comparison of revenue. For example, June charge-offs may relate to the previous December billings. Gas costs could have been lower in the previous period compared to the current revenue that would lower the percentage.

(b) In 2003, Bay State did incur a couple of large write-offs that did not occur in 2004.

(c) Please see Attachment DTE-9-20 for the prior years. The five months ended May 2005 is as follows:

Firm Revenue	\$348,540,579
Net write-off	\$2,863,755
Percentage	.82%

Please note that 5 months ending May is not relevant since a large part of the Company's revenue is generated during the winter months, and charge offs rise in the second half of the year.

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Date: June 30, 2005

Responsible: Joseph A. Ferro, Manager Regulatory Policy

UWUA-3-19 Please explain (i) why the farm discount declined substantially in the past two years (Sched. JES-6, p. 13) and (ii) any efforts the company is currently engaged in to increase the numbers of customers on the farm discount.

Response: In 2002 a coding error was discovered and it involved removing approximately 100 accounts from the farm rate that were on the rate in error. These accounts should have been coded as FRM-TR (firm transportation). The coding error was due to the one vowel difference between the words "firm" and "farm." In 2002, the Department of Food and Agriculture confirmed that Bay State should have had only 53 customers on the farm rate. In 2003, 2004 and 2005, Bay State has had approximately 45 accounts on the farm rate and this number of accounts reconciles with the reports produced by the DFA.

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Date: June 30, 2005

Responsible: John Skirtich, Consultant (Revenue Requirements)

UWUA-3-22 (Skirtich, p. 35) Please explain any financial advantages to the Company or ratepayers of purchasing/selling/leasing back the Itron reading devices.

Response: Sale/leasebacks reduce costs and provide cash/capital for investing in utility plant. Please see Bay State's responses to DTE-5-26 and DTE-5-27.

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Date: June 30, 2005

Responsible: John E. Skirtich, Consultant (Revenue Requirements)

UWUA-3-31 (Sched. JES-6, p. 6) To the extent not already provided in response to UWUA 3-11, please separately list each and every "general liability" claim for the period January 1, 1999 to present, including a brief description of the nature of the claim and the amount paid.

Response: Please see Bay State's response to UWUA-3-11.

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Date: June 30, 2005

Responsible: Danny G. Cote, General Manager

UWUA-3-35 Please explain the nature and scope of the work being done by the "EIC", including an explanation of what "MGP fuels" are. Also explain what the "OTD" program's goals or priorities are.

Response: The "EIC" projects refer to R&D being proposed under the Environmental Issues Consortium (EIC). The objective of the EIC projects is to lower the costs of environmental compliance by gas local distribution companies (LDC's). Major projects proposed under the EIC program are:

- Hydrocarbon Degradation Products in Sedimentary Environments
- Developing Rapid Quantitative PCB Analysis in the Field
- Implications of the PCB Mega Rule on Natural Gas T&D
- Sources of Indoor Air VOCs near Former MGP Sites
- Linking MGP Fuels to MGP By-Products with Stable C and H2 Isotopes
- External Corrosion Survey of Natural Gas Pipelines
- Internal Corrosion Survey of Natural Gas Pipelines
- Effect of Petroleum-Based Hydrocarbons on PE Structural Integrity

Bay State has proposed funding the Linking MGP Fuels to MGP By-Products with Stable C and H2 Isotopes Project. This project by the Gas Technology Institute (GTI) addresses the objective of conclusively linking fuels used in former manufactured gas plant (MGP) processes to their by-products. This knowledge is essential for environmental forensic investigations at former MGP sites. It is often important to determine where and how the wastes have originated, including pinpointing the specific MGP process that created the wastes. Currently available analytical methods at times do not answer these questions conclusively, especially when environmental weathering is involved. In this research, carbon and hydrogen isotope compositions of individual polycyclic aromatic hydrocarbons (PAH) found in MGP wastes will be used to understand how the MGP fuel changes during tar formation and through biodegradation or other environmental weathering processes. Making the Company responsible only for those wastes its predecessors actually created can reduce the costs of MGP plant cleanup substantially, and

benefit the Company's gas customers through reduced environmental compliance costs.

"MGP fuels" refers to the specific coal (even down to the coal mine) or other fuels (e.g., naphtha) actually used in the MGP plants.

The Operations Technology Development (OTD) Program's objective is to develop, test, and implement new technology, providing solutions to a wide range of issues relating to gas operations and its infrastructure. It is designed to provide new tools, equipment, software, processes or procedures that will enhance safety, increase operating efficiency, reduce operating costs, and help maintain system reliability and integrity. This will result in lower operating and maintenance (O&M) costs, which will translate into lower consumer costs. For a more detailed description of the OTD Program, please reference the OTD Prospectus included as Attachment UWUA-3-35.





## **Offering - Operations Technology Development**

### ***An LDC Partnership Program***

For many years, natural gas local distribution companies (LDCs), both public and investor owned, have recognized the value of supporting technology developments for their customers and their own infrastructure. Industry-supported technological advances have provided improvements in the quality of service, reduced costs, greater efficiency, enhanced safety, and considerable environmental benefits. LDCs have also recognized the importance of leveraging their investments with others who have similar interests to minimize the risks and improve the potential for success. Given this need, LDCs are pursuing funding alternatives to support critical technology developments.

One of these alternatives was to create an entity where utilities come together as partners to jointly fund potential technology development solutions to common issues. The concept is not new. Gas Technology Institute (GTI) developed and evolved a program called the Sustaining Membership Program (SMP) that allows utilities to partner and decide which projects best address their mid- to longer-term needs. The SMP has two decision-making bodies comprised of utility representatives: an executive committee that focuses on strategic issues, and a technical committee that makes decisions on which projects to fund.

With GTI's history, management capabilities, and technology development expertise, a group of LDCs approached GTI in 2002 to work with them on further developing the concept. The primary areas to focus on were Gas Operations, End Use, and Environmental Science. Gas Operations was identified as the first area to address.

Under the partnership program, Operations Technology Development (OTD) was created, similar in structure to the SMP. After several individual meetings and two group meetings with LDCs, GTI initiated, on behalf of a select group of utilities, a not-for-profit Illinois company called Operations Technology Development, NFP, in June 2003.

The scope of the OTD program includes mid- to near-term technology developments. Each OTD member nominated an individual from their company to serve on the Board of Directors and an individual to serve on the Technical Project Committee. The participants vote with their funds by choosing which projects best address their customers' and utility operations' needs.

## **BACKGROUND AND LDC NEEDS**

LDCs have traditionally placed great importance on the safety and reliability of the operation of the gas distribution network. Throughout the United States, LDCs provide natural gas service to over 50 million residential, commercial, and industrial customers. These end users receive safe, reliable gas service through the focused efforts of the gas company, and through the use of new technologies that enhance field operations.

The development and implementation of new technology for gas industry field operations, whether new tools, equipment, processes, or procedures, has allowed the industry to continually improve operations while reducing operating costs. Since 1995, the gas industry has reduced its annual costs for operations and maintenance from \$3.2 billion to \$2.8 billion. Although significant, additional development and implementation of new technology can further enhance these savings while having a positive impact on safety, operating efficiency, labor requirements, reliability, and integrity.

Today, LDCs continue to support the need to develop technology solutions for the natural gas industry and the gas consumer, but place a stronger emphasis on working collaboratively. This is especially apparent in the distribution operations area. There are numerous benefits to working collaboratively to develop technology solutions for LDCs including: the leveraging of funds (no single LDC is responsible to carry the entire financial burden); the ability to gain the interest of a commercializer based on broad industry support; and using input from numerous expert sources that result in a stronger solution. There is also a significant benefit to working collaboratively on programs or projects that can impact regulatory issues, such as pipeline integrity management.

## **OPERATIONS TECHNOLOGY DEVELOPMENT PROGRAM OVERVIEW**

Operations Technology Development (OTD) develops, tests, and implements new technology, providing solutions to a wide range of issues relating to gas operations and its infrastructure. It is designed to provide new tools, equipment, software, processes, or procedures that will enhance safety, increase operating efficiency, reduce operating costs, and help maintain system reliability and integrity.

### **PROGRAM SIZE AND SCOPE**

The program seeks the long-term participation of 15 to 25 LDCs. The cost of participating in OTD is between \$250,000 and \$750,000 per company per year. The number of customers, at 50 cents per customer, determines the funding level for each participant. Each participating company votes with their funds when selecting projects of interest. In the case where companies fall significantly below the \$250,000 range, aggregation can be an option providing it adheres to a set of guidelines approved by the OTD Board. For example, the APGA Research Foundation aggregates the financial resources of its members and participates in OTD as a single company.

The minimum amount determined to sustain a viable gas operations technology development program today is approximately \$15 million/year. The goal of OTD is to secure \$10 million/year from the LDCs and leverage the funds with other organizations.

The OTD program focuses its technology development efforts on distribution and transmission activities identified by the members. The RD&D program includes a mix of short-term (less than 3 years) quick-response research, engineering, or testing activities; and mid- to longer-term research projects (3-7 years to implementation). The current OTD projects are divided into the following six project categories:

- Pipe and Leak Location
- Pipe Materials, Repair and Rehabilitation
- Excavation and Site Restoration
- Pipeline Integrity Management and Automation
- Operations Infrastructure Support
- Environmental Science and Forensic Chemistry

## OTD GOVERNANCE

The overall structure of this LDC partnership program is shown in Figure 1. OTD retains the assets of the Partnership. This includes the cash assets of the technology development budget and any intellectual property.

### LDC Partnership Structure for Operations

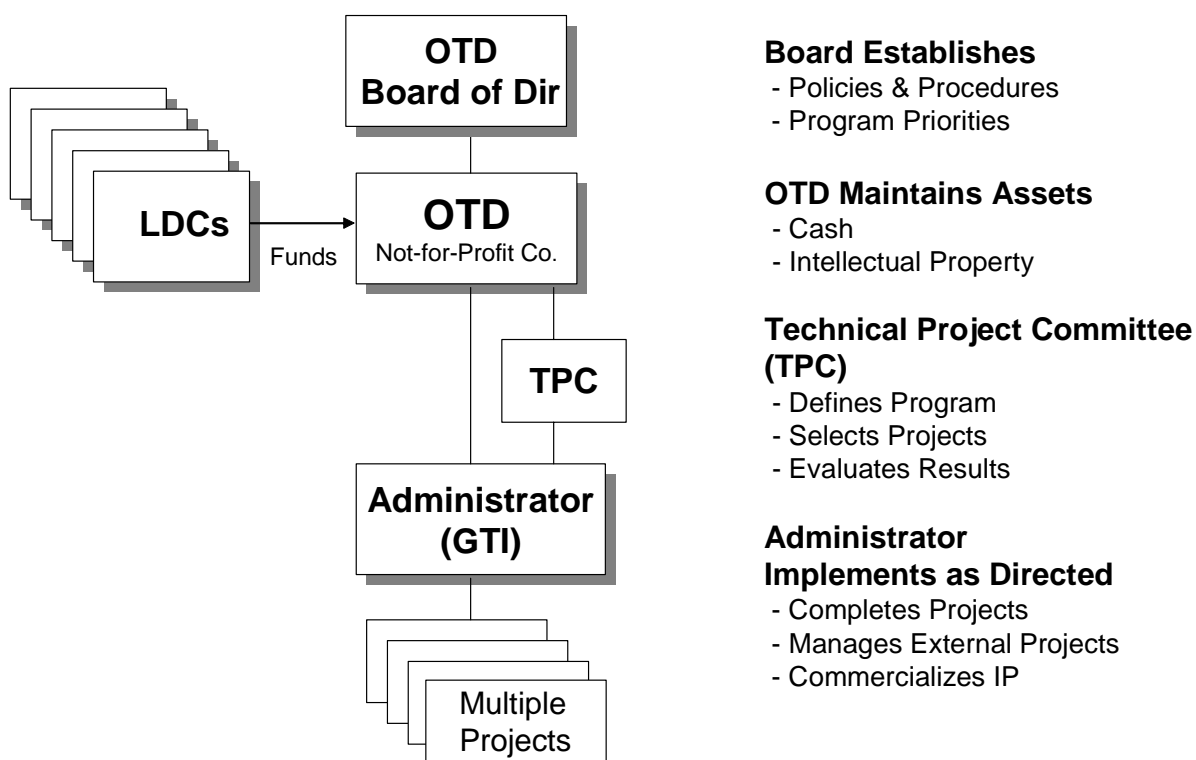


FIGURE 1

OTD is a not-for-profit corporation, although it does not have any employees. GTI has contracted with OTD as the Administrator to perform and complete projects; manage projects external to GTI; and work with the appropriate commercialization partner to introduce the product into the marketplace. GTI also utilizes its staff and resources to provide support in contract administration, financial accounting, and management of the new technology program.

The OTD Board of Directors consists of one member from each participating company. The Board establishes the policy and procedures that governs the operation and conduct of the partnership, provides strategic guidance on program priorities, and sets long-term goals and objectives.

A Technical Project Committee (TPC) is comprised of representatives from the participating companies who are knowledgeable in gas industry operations and the challenges and problems they face. The TPC identifies the overall operational issues to be addressed in the program, and the specific topics that will be the focus of individual research projects. GTI, working with TPC members, identifies research and technology development options with potential for providing solutions to the problems being addressed. The TPC reviews the progress of individual projects and provides direction on project continuations, terminations, and initiations. TPC members are also the main conduit for disseminating the results and deliverables from the program into their companies. This committee meets two or three times per year, and seeks to schedule meetings in coordination with other scheduled meetings of interest to the gas industry to limit travel and related expenses.

GTI functions as a provider of research and technology development services, the OTD Program Manager, and a manager of work conducted by others to address the identified problems. GTI's role in a given development effort is determined by the project participants and by the requirements of the project.

## **PROJECT FUNDING**

A participating LDC has the option to fund or not fund an individual project. The program operates on a "customer choice" basis, with each member investing in the projects they wish to fund. Once participating companies elect to move a project forward, and the scope of work is finalized, the project participants may elect to seek additional project cofunders outside of the Partnership. Cofunders solicited may include federal and state government agencies, and product manufacturers/developers.

## **FUNDING PROCEDURE**

Companies participating in the OTD program can provide their funding through one of two arrangements. A company may place their full amount of funding for a year or longer in a "hold account." Alternatively, a participating company may elect to receive periodic invoices for

their participation. Payments received will be deposited into their hold account. Participants will draw down funds from their hold account and apply them to selected projects.

Funds received by OTD from a member are held in trust by OTD until the member representative directs OTD to allocate a specific dollar amount to a specific OTD project. Until allocation notice is received by OTD, a company's funds remain under the full direction and control of the participating utility. Unallocated funds remain the property of the OTD utility participant until allocated, at which time they will be transferred to OTD to support new technology development as directed by the company representative.

## **ADDITIONAL INFORMATION**

If you would like additional information on OTD, please contact your GTI Strategic Account Manager or the OTD Program Administrator, Ron Snedic.

Mr. Ron Snedic  
Phone: 847/768-0572  
FAX: 847/919-6828  
Email: [ron.snedic@gastechnology.org](mailto:ron.snedic@gastechnology.org)

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Responsible: Danny G. Cote, General Manager

UWUA-3-44 (Cote) Please identify the first gas utility in New England that installed Metscan devices, by name of company and year of installation, to the best of Mr. Cote's knowledge.

Response: Mr. Cote does not know which utility was the first gas utility in New England to install Metscan devices. Listed in Table UWUA-3-44 are the names of other utilities that purchased residential Metscan devices prior to 1995. Bay State began testing and installation of Metscan devices in 1990.

TABLE UWUA-3-44

ARKLA/RELIANT  
ATLANTA GAS LIGHT  
BAY STATE GAS  
BC GAS UTILITY  
BOSTON GAS  
KEYSPAN BROOKLYN  
CANADIAN WESTERN  
CENTRA GAS MANITOBA  
CIPS/AMERAN  
CENTRAL HUDSON  
COLUMBIA GAS OF OHIO  
CNG  
CONSUMERS - ONTARIO  
EAST OHIO GAS  
ELIZABETHTOWN GAS  
ENERGAS - ATMOS  
EQUITABLE GAS - PITTS. HOPE GAS  
MIDWEST GAS  
MOUNTAINEER  
NATIONAL FUEL GAS  
NEW JERSEY NATURAL  
NICOR  
NORTHWESTERN UTILITIES  
PEOPLES NATURAL OF OMAHA  
PROVIDENCE GAS  
PSCO/NEW CENTURY  
RG&E  
SOCAL  
TRANSGAS  
WISCONSON GAS  
WP&L/ALLIANT  
YANKEE GAS



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Responsible: Danny G. Cote, General Manager

UWUA-3-47 (Cote, SIR) (a) For the period 1999 to 2004, please describe the company's general policies or guidelines for (i) deciding that patches would be applied to mains that experienced leaks versus (ii) deciding that the segment of main experiencing leaks would be removed and replaced. Include the extent to which the patch versus remove/replace decision varied by (a) the type of pipe (cast iron, coated steel, bare steel, etc.) (b) geographic division of the company (c) number of other, prior leaks in the vicinity (d) available funding under the budget for capital expenditures or O&M or (e) other considerations. Include any written directives, guidance, etc. provided to the persons who would make the decision to patch versus remove/replace.

(b) Please describe the level of employees (e.g., field supervisor, manager, etc.) involved in decisions to patch versus remove/replace pipe segments experiencing leaks, and the relative roles these employees (e.g., managers, field supervisors) played in making those decisions.

Response: a) During the period of 1999-2004, the decision to "patch" or repair vs. replacement was a decision guided by the operational experience and judgment of local management, including considerable input from Bay State's experienced engineering staff, based several factors. These factors could include, but are not limited to, an evaluation of the number of leaks in the vicinity, any concurrent municipal work (utility conflicts), the need for system improvement, considerations of public safety, and the pipe type and size. At no time was Bay State prevented from replacing poor condition pipe where there were public safety concerns, for any reason.

b) Typically, the field supervisor, the engineering department, and the local operations manager, in consultation, make the field decision to repair vs. replace. Once a replacement decision is made, the local management team pursues approvals through Bay State's capital authorization process.

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Responsible: Danny G. Cote, General Manager

UWUA-3-49 (Cote, pp. 19-22) Unless already provided in response to UWUA 1-13, please provide a table listing the capital expenditures within the Brockton division for replacement of mains for each year 1999 to 2004.

Response: Please see Bay State's response to UWUA-1-13, specifically Attachment UWUA-1-13(b).

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Responsible: Danny G. Cote, General Manager

UWUA-3-50 (Cote, p. 25) What considerations affect the decision to replace old pipe with cathodically protected steel versus plastic?

Response: Please see Bay State's response to DTE-3-16.

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Responsible: Danny G. Cote, General Manager

UWUA-3-51 (Cote, pp. 26-27) Please explain the respective roles of the company's own employees versus the outside contractors in the SIP program in replacing or modifying the 29,520 unprotected steel services and in making all of the necessary tie-ins and relocations of meters and regulators after mains are replaced.

Response:

**For the Brockton Division:** Company Inspectors inspect and oversee outside contractors. Company pipe fitters replace and relocate gas meters and regulators and install associated gas piping except as described in Article XV, paragraph 3 of the Agreement By and Between Bay State Gas Company and the Utility Workers' Union of America, AFL-CIO.

Full contractor crews are typically used for replacement of mains and services. Contractors may tap service tapping tees and purge lines two (2) inches and smaller, except as described in Article XV, paragraph 3 of the Agreement By and Between Bay State Gas Company and the Utility Workers' Union of America, AFL-CIO.

**For the Lawrence Division,** Company construction specialists, regular employees, temporary employees, or consultants inspect and oversee outside contractors. Company pipe fitters replace and relocate gas meters and install associated gas piping to reconnect to the house piping

Full contractor crews are typically used for replacement of mains and services. Contractors tap service tapping tees and tap and purge mains as needed.

**For the Springfield Division,** Company construction specialists or consultants inspect and oversee outside contractors. Company pipe fitters replace and relocate gas meters and install associated gas piping to reconnect to the house piping

Full contractor crews are typically used for replacement of mains and services. Contractors tap service tapping tees and tap and purge mains

under some circumstances. Company crews perform main tie-in work for all others.

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Date: June 30, 2005

Responsible: Danny G. Cote, General Manager

- UWUA-3-53 (a) Please provide any and all written documents for the period January 1, 1999 to present regarding the charges that apply to (i) new business residential services and (ii) new business C&I services, as well as all such changes to these charges. Please include any and all analyses or memos regarding the "rate of return policy" that will apply when developing charges for new business services. Also include documents extant during the period 1999 to present that list or define (a) the length of service that will be provided at no charge, and, if applicable, the extent to which the length of free service line varied by division (Brockton/Springfield/Lawrence) or by type (e.g., by percentage of the service length that is within pavement/concrete/cobblestone, below a certain depth, etc.) and (b) the amount of the charge for obtaining new service if the length exceeded the free amount.
- (b) Please provide a copy of any and all complaints regarding any customer, contractor, developer, etc. having to pay charges for installing a new service line.

Response: Please see the following attachments:

Attachment UWUA-03-53 (a) -- 1999 Input Instructions for the ROR model

Attachment UWUA-03-53 (b) -- Growth Investment Evaluation Framework for 2000

Attachment UWUA-03-53 (c) -- May 22, 2001 - Rate of Return Policy New Business Residential Services. Note – the service lengths indicated in this policy are the total length of the service

Attachment UWUA-03-53 (d) -- December 10, 2001 – New Hurdle Rates Capital Evaluation Framework. Note – this is an attachment to an apparent re-release of UWUA-03-53 (a)

Attachment UWUA-03-53 (e) -- February 15, 2002 - Residential Service Standard Customer Offer. Note – the service lengths indicated in this policy are the length from the curb.

## Input Instructions for the ROR Model

The ROR files have been reduced to three files, one per state. These files become effective November 1, 1999. On each file, you can run a residential return, a commercial return or a simple combined return.

The following are helpful hints to enter in the inputs:

- 1) Project Name
- 2) Project Location – this is for the street address
- 3) Town Code
- 4) Enter a **1** if this is your “**Base Case**” scenario or a **2** if this is a “**Best Case**” scenario. If you are running a Base Case and a Best Case that means you were given two capital investment costs.
- 5) The system needs to know if you are running a residential, commercial or a combined return. Enter the following to determine
  - i) Residential = 1
  - ii) Commercial = 2
  - iii) Combined = 3

**NOTE: When running a combined return, you MUST enter residential in the “[A] Load Data” section and commercial in the “[B] Load Data” section. Every time you enter a 3 in this field, you will get a warning message repeating this note.**

- 6) Load Data on a per meter basis:
  - a) Customer Code – there is a reference guide on the top right of each file.
  - b) Heat Load – per meter
  - c) Base Load – per meter
  - d) # of meters

When running two customers who have very different usage needs, add the second customer to section 6e through 6h.

- e) Customer Code
  - f) Heat Load – per meter
  - g) Base Load – per meter
  - h) # of meters
- 7) Incentives or rebates on a per meter basis
- 8) Investment Cost Data
  - a) Mains
  - b) Services
  - c) Meter & Fit
  - d) Direct Overheads – when a job is priced out, this section should be pulled off and put into it is own grouping.

If you have any questions when running a any returns, please call me and I will walk you through the process.

### **Discounted Cash Flow Method**

#### **There is a difference between cash flows, taxable income and net income.**

Cash Flows are the actual dollars that flow in and out of the company.

Taxable Income is gross income less allowable business deductions.

Net Income is revenues less expenses. Revenues less expenses are used to generate financial information based on generally accepted accounting principles. This information is used to measure the company's performance.

**NPV calculations are only as good as the underlying cash flows, hence the results are only as good as the assumptions made for construction cost, customer usage, etc.**

**Internal Rate of Return Calculation, Discounted Cash Flow analysis, is a benchmark to measure the profitability of a project. Theory - an IRR higher than the Company's cost of capital should be accepted and one less than the company's cost of capital should be rejected. Keep in mind that there will sometimes be other factors to consider when determining the benefit the project has to the company.**

#### **Capital Investment**

All direct construction cost associated with hooking up a customer, main, service, meter and fit costs. There is a marginal overhead added to the construction cost. The marginal overhead is for indirect expenses associated with operating a company. The marginal overhead is built into the calculation within the file. You do not need to calculate this.

#### **Cost of Capital**

Also referred to as "Discount Rate" or "Hurdle Rate". The marginal cost of capital represents the incremental, weighted average, after-tax costs of equity and debt needed to support incremental investments. This is the Company's target capital structure over the investment. Generally, this is a confidential figure and should not be shared with potential customers. Theory - the project's internal rate of return must be greater than the discount rate in order for the project to be financially profitable.

#### **Discounted Cash Flow**

This is a means of determining the value of a particular investment based on its cash flow. The methodology includes stating the net cash flows (cash inflows less cash outflows) over a given time and discounting that series back to a present value worth, based on the Company's estimated cost of capital.

#### **Net Present Value**

Present value of a project's cash flows (inflows less outflows) minus initial capital investment, using the Company's discount rate. The NPV has the interpretation of the residual left for the investors after all costs have been covered. This is the projected profit the company would make after all revenue, expenses and time value of money are considered.



**Internal Rate of Return**

Discount rate which equates the present value of a project's expected cash inflows to the present value of the projects expected costs. Rate of return theory, invest in a project offering a rate of return that is higher than the discount rate.

**Customer Contribution**

CIAC - Contribution In Aid of Construction. All revenue dollars are taxable income and subject to a tax impact. If a project has a revenue shortfall, does not meet the company required discount rate, a project has a negative impact on the company. In order to make whole of a revenue shortfall, the customer must pay the difference, but since what the customer pays is a revenue, we pay taxes on that revenue, therefore we gross up for taxes, collecting more than the revenue shortfall.

<b>BSG - MA C&amp;I Rate Classes</b>		
Rate Q	Low Annual Use Low Winter Use	Less than 500 MCF per year Winter use less than 70%
Rate R	Low Annual Use High Winter Use	Less than 500 MCF per year Winter use greater than 70%
Rate S	Medium Annual Use Low Winter Use	Between 500 & 3,999 MCF per year Winter use less than 70%
Rate T	Medium Annual Use High Winter Use	Between 500 & 3,999 MCF per year Winter use greater than 70%
Rate U	High Annual Use Low Winter Use	4,000 MCF or greater per year Winter use less than 70%
Rate V	High Annual Use High Winter Use	4,000 MCF or greater per year Winter use greater than 70%
<b>NU - ME C&amp;I Rate Classes</b>		
G - 40	Low Annual Use High Peak Use	Less than 800 MCF per year Peak period use GREATER than 63%
G - 41	Medium Annual Use High Peak Use	Between 800 & 9,999 MCF per year Peak period use GREATER than 63%
G - 42	High Annual Use High Peak Use	10,000 MCF or greater per year Peak period use GREATER than 63%
G - 50	Low Annual Use Low Peak Use	Less than 800 MCF per year Peak period use LESS than 63%
G - 51	Medium Annual Use Low Peak Use	Between 800 & 9,999 MCF per year Peak period use LESS than 63%
G - 52	High Annual Use Low Peak Use	10,000 MCF or greater per year Peak period use LESS than 63%

<b>New Hampshire Rate Classes</b>	
<b>Residential</b> Heating Non Heating Low Income Heating Low Income Non Heating	<b>Commercial</b> General Service Commercial Heating Large Volume Extra Large Volume Summer Air Conditioning

## Intercompany Communication

**Date:** May 18, 2000 **From:** Scott MacDonald  
**Subject:** Growth Investment Evaluation Framework for 2000 **Dept.** Finance and Strategy  
**To:** Vittorio Pareto  
**Cc:** Ken Margossian, Tom Sherman, Jeff Yundt  
Rick Cencini, Doug Casey, Vinny Casamassima

In support of the implementation of the new Sales and Marketing strategy to achieve greater profitable growth, the Finance & Strategy area has developed new hurdle rates for growth-related investments that will become effective on May 22, 2000.

The attached "Growth Investment Evaluation Framework" details the new hurdle rates by investment type (Attachment 1). The framework recognizes that different kinds of growth investments have different risk profiles and therefore should have different hurdle rates.

The new framework recognizes four types of growth-related investments: on-the-main, off-the-main, multi-phased projects (load added over 2 years or more), and beyond-the-meter investments. The framework employs Risk Adjusted Discount Rates that reflect Bay State's underlying Weighted Average Cost of Capital (see Attachment 2) plus an adjustment for risk. In addition, the framework incorporates a Target Premium to ensure that investment returns meet the strategic goals of the company.

This has been an exceptional year for profitable growth and based on the projects we have committed to we are well on our way to meeting our sales goals for 2000. In fact we are increasing our growth capital spending approximately \$1million to invest in new profitable projects. Accordingly, we are currently setting the Target Premium at 1.5% so that the additional growth capital will be allocated to the highest return projects available.

The Target Premium, along with the Weighted Average Cost of Capital and Risk Adjusted Discount Rates, will be reviewed periodically by the Finance & Strategy area and will be updated as necessary by the Senior Management.

Attachments (2)

## GROWTH INVESTMENT EVALUATION FRAMEWORK FOR 2000

## ATTACHMENT 1

GROWTH INVESTMENT	EVALUATION PROCESS	RISK ADJUSTED RATE	TARGET PREMIUM	HURDLE RATE
<b>ON THE MAIN</b> <ul style="list-style-type: none"> <li>Residential with less than 130 feet service required</li> <li>Residential &amp; C&amp;I - "plain vanilla" investments</li> <li>Key Accounts – with a supporting contract [1]</li> <li>Key Accounts – without a supporting contract</li> </ul>	<ul style="list-style-type: none"> <li>Automatic approval</li> <li>Rate of Return (ROR) Analysis required</li> <li>Rate of Return (ROR) Analysis required</li> <li>Rate of Return (ROR) Analysis required</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>8.6%</li> <li>8.6%</li> <li>10.0%</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>1.5%</li> <li>1.5%</li> <li>1.5%</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>10.1%</li> <li>10.1%</li> <li>11.5%</li> </ul>
<b>OFF THE MAIN</b> <ul style="list-style-type: none"> <li>System Expansion – new construction &amp; conversions With supporting contracts</li> <li>System Expansion – no supporting contracts</li> </ul>	<ul style="list-style-type: none"> <li>Project write-up, Rate of Return (ROR) and ROR sensitivity analysis required</li> <li>Projects are <i>unacceptable</i> without contracts</li> </ul>	<ul style="list-style-type: none"> <li>10.0%</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>1.5%</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>11.5%</li> <li>NA</li> </ul>
<b>MULTI - PHASED PROJECTS</b> <ul style="list-style-type: none"> <li>Projects with expected load &amp; customer additions spread over two or more years</li> </ul>	<ul style="list-style-type: none"> <li>Project write-up, Rate of Return (ROR) and ROR sensitivity analysis required</li> </ul>	<ul style="list-style-type: none"> <li>11.4%</li> </ul>	<ul style="list-style-type: none"> <li>1.5%</li> </ul>	<ul style="list-style-type: none"> <li>12.9%</li> </ul>
<b>BEYOND THE METER</b> <ul style="list-style-type: none"> <li>Beyond the Meter Investment (contract required)</li> </ul>	<ul style="list-style-type: none"> <li>Project write-up, Rate of Return (ROR) and ROR sensitivity analysis required</li> </ul>	<ul style="list-style-type: none"> <li>14.2 %</li> </ul>	<ul style="list-style-type: none"> <li>1.5%</li> </ul>	<ul style="list-style-type: none"> <li>15.7%</li> </ul>

[1] Cash flows supported by a contract to be discounted at the lower hurdle rate of 10.1%, cash flows *not* supported by a contract to be discounted at the higher hurdle rate of 11.5%

## Input Instructions for the ROR Model

Attachment UWUA-3-53(b)  
DTE 05-27  
Page 3 of 7

The ROR files have been reduced to three files, one per state. These files become effective November 1, 1999. On each file, you can run a residential return, a commercial return or a simple combined return.

The following are helpful hints to enter in the inputs

- 1) Project Name
- 2) Project Location – this is for the street address
- 3) Town Code
- 4) Enter a 1 if this is your “Base Case” scenario or a 2 if this is a “Best Case” scenario. If you are running a Base Case and a Best Case that means you were given two capital investment costs.
- 5) The system needs to know if you are running a residential, commercial or a combined return. Enter the following to determine
  - i) Residential = 1
  - ii) Commercial = 2
  - iii) Combined = 3

**NOTE:** When running a combined return, you **MUST** enter residential in the “[A] Load Data” section and commercial in the “[B] Load Data” section. Every time you enter a 3 in this field, you will get a warning message repeating this note.

- 6) Load Data on a per meter basis:
  - a) Customer Code – there is a reference guide on the top right of each file.
  - b) Heat Load – per meter
  - c) Base Load – per meter
  - d) # of meters

When running two customers who have very different usage needs, add the second customer to section 6e through 6h.

- e) Customer Code
  - f) Heat Load – per meter
  - g) Base Load – per meter
  - h) # of meters
- 7) Incentives or rebates on a per meter basis
- 8) Investment Cost Data
  - a) Mains
  - b) Services
  - c) Meter & Fit
  - d) Direct Overheads – when a job is priced out, this section should be pulled off and put into it is own grouping.

If you have any questions when running a any returns, please call me and I will walk you

through the process.

## **Discounted Cash Flow Method**

Attachment UWUA-3-53(b)  
DTE 05-27  
Page 4 of 7

**There is a difference between cash flows, taxable income and net income.**

Cash Flows are the actual dollars that flow in and out of the company.

Taxable Income is gross income less allowable business deductions.

Net Income is revenues less expenses. Revenues less expenses are used to generate financial information based on generally accepted accounting principles. This information is used to measure the company's performance.

NPV calculations are only as good as the underlying cash flows, hence the results are only as good as the assumptions made for construction cost, customer usage, etc.

Internal Rate of Return Calculation, Discounted Cash Flow analysis, is a benchmark to measure the profitability of a project. Theory - an IRR higher than the Company's cost of capital should be accepted and one less than the company's cost of capital should be rejected. Keep in mind that there will sometimes be other factors to consider when determining the benefit the project has to the company.

### **Capital Investment**

All direct construction cost associated with hooking up a customer, main, service, meter and fit costs. There is a marginal overhead added to the construction cost. The marginal overhead is for indirect expenses associated with operating a company. The marginal overhead is built into the calculation within the file. You do not need to calculate this.

### **Cost of Capital**

Also referred to as "Discount Rate" or "Hurdle Rate". The marginal cost of capital represents the incremental, weighted average, after-tax costs of equity and debt needed to support incremental investments. This is the Company's target capital structure over the investment. Generally, this is a confidential figure and should not be shared with potential customers. Theory - the project's internal rate of return must be greater than the discount rate in order for the project to be financially profitable.

### **Discounted Cash Flow**

This is a means of determining the value of a particular investment based on its cash flow. The methodology includes stating the net cash flows (cash inflows less cash outflows) over a given time and discounting that series back to a present value worth, based on the Company's estimated cost of capital.

### **Net Present Value**

Present value of a project's cash flows (inflows less outflows) minus initial capital investment, using the Company's discount rate. The NPV has the interpretation of the residual left for the investors after all costs have been covered. This is the projected profit the company would make after all revenue, expenses and time value of money are considered.

**Internal Rate of Return**

Discount rate which equates the present value of a project's expected cash inflows to the present value of the project's expected costs. Rate of return theory, invest in a project offering a rate of return that is higher than the discount rate.

**Customer Contribution**

CIAC - Contribution In Aid of Construction. All revenue dollars are taxable income and subject to a tax impact. If a project has a revenue shortfall, does not meet the company required discount rate, a project has a negative impact on the company. In order to make whole of a revenue shortfall, the customer must pay the difference, but since what the customer pays is a revenue, we pay taxes on that revenue, therefore we gross up for taxes, collecting more than the revenue shortfall.

2.] Project Location:	Test
3.] Town Code:	244
4.] Base Case = 1 / Best Case = 2	1
Residential = 1 / C&I = 2 /	
5.] Combined = 3	1 Residential

Base Case

Q = 1	Heating	1
S = 2	Non-Heating	2
U = 3	Sub. Heating	3
R = 4	Sub. Non-Htg	4
T = 5		
V = 6		

Print Summary

Attachment UWUA-3-53(b)  
DTE 05-27  
Page 6 of 7

Town	Springfield
Violation Code	2
Property Tax	\$36.84

	Year 2			
	0	0	0	0
b. Heat Load - Mcf/Meter	105	0	0	0
c. Base Load - Mcf/Meter	24	0	0	0
d. Meters	10	0	0	0

(B) Load Data

Project Life (years)	0	0	0	0
a. Customer Code	0	0	0	0
f. Heat Load - Mcf/Meter	0	0	0	0
g. Base Load - Mcf/Meter	0	0	0	0
h. Meters	0	0	0	0

Other Variables

Other Revenues - per meter	\$2.66	\$2.66	\$2.66	\$2.66	Res: Customers Only
7.] Incentives or rebates - per meter	\$0	\$0	\$0	\$0	

Investment Cost Data	7.31%	\$19,000			Total Base Case
a. Mains	\$12,000	\$0	\$0	\$0	\$12,000
b. Services	7,000	0	0	0	7,000
c. Meter & Fit	1,200	0	0	0	1,200
d. Direct Overheads	0	0	0	0	0
* System Improvements (calc)	0	0	0	0	0
* Marginal Cost (calc)	1945	0	0	0	1945
* Total Investment \$	\$21,145	\$0	\$0	\$0	\$21,145
* Cumulative Investment	\$21,145	\$21,145	\$21,145	\$21,145	\$21,145

	55 Years	25 Years	15 Years	10 Years	5 Years
* IRR	7.31%	25.84%	2.20%	DIV/01	NUM/01
* NPV	(\$3,025)	(\$4,637)	(\$7,383)	(\$10,123)	(\$14,354)
* Customer Contribution	\$4,978	\$7,630	\$12,150	\$16,658	\$23,620
* Net Payback (yrs)	56	* Net Revenues		\$4,475	



Scenario:  
Development Name  
Address  
Town

Base Case  
Test  
0  
244

Division  
Number of Meters  
Proposed Heat Load Mcf  
Proposed Base Load Mcf  
Total Load

Springfield  
10  
1,050  
240  
1,290

Attachment UWUA-3-53(b)  
DTE 05-27  
Page 7 of 7

Rate Schedule (year 1)

Heating	N/A
---------	-----

Heat Load per Meter  
Base Load per Meter  
Load Per Meter

105  
24  
129

Estimated Cost:

Main  
Service  
Meter & Fit  
Direct Overheads  
System Improvements  
Marginal Costs  
Project Total  
Cost per Meter

\$12,000  
7,000  
1,200  
0  
0  
245  
\$21,145  
\$2,114

Cash Flow Results

55 Year Return

Rate of return - IRR  
Customer Contribution  
• NPV  
• Net Payback (years)  
• Net Gas Revenues  
• Net Rate/MMBtu  
• Residential Other Revenues/MTR  
• Incentives/MTR

7.31%  
\$4,978  
(\$3,025)  
56  
4,475  
\$3.45  
\$2.66  
\$0.00

Results (Income Basis)

	Year 1	Year 2	Year 3	Year 4
Net Gas Revenues	\$4,475	\$4,475	\$4,475	\$4,475
O&M	1,640	1,640	1,640	1,640
Depreciation	423	846	846	846
Property Taxes	779	779	779	779
Operating Income	1,632	1,209	1,209	1,209
Interest Expense	746	746	746	746
Income Taxes	348	348	182	182
Net Income	\$538	\$115	\$281	\$281

**RATE OF RETURN POLICY****NEW BUSINESS RESIDENTIAL SERVICES**

Current standard unit costs were developed, considering the four types of digging conditions, for residential services within Bay State Gas' and Northern Utilities' service territories. These costs (revised 4-20-01) shall be used when the rate of return (ROR) model is employed to determine a customer contribution. The fully loaded (direct and overhead) standard unit costs include local and corporate overhead. The unit cost schedule is included in the Sales Manual under tab "Construction Estimating Process".

An analysis was performed for each service type (digging condition), based on current standard unit costs and recent *average* residential annual consumption, to determine the length of free service. The analysis assumed an 8.6% return for single residential dwellings.

The following schedule shall be used to determine the length of free service or whether a ROR is required to calculate a customer contribution:

**MASSACHUSETTS****Brockton** (free service length based on 114 mcf annual consumption)

<u>Digging Condition</u>	<u>Free Service (# feet)</u>	<u>Rate of Return Required to Determine Customer Contribution?</u>
Type 1	None	Yes
Type 2	105	Yes, if service length greater than 105'
Type 3	125	Yes, if service length greater than 125'
Type 4	290	Yes, if service length greater than 290'

**Springfield** (free service length based on 108 mcf annual consumption)

<u>Digging Condition</u>	<u>Free Service (# feet)</u>	<u>Rate of Return Required to Determine Customer Contribution?</u>
Type 1	None	Yes
Type 2	70	Yes, if service length greater than 70'
Type 3	110	Yes, if service length greater than 110'
Type 4	240	Yes, if service length greater than 240'

**Lawrence** (free service length based on 122 mcf annual consumption)

<u>Digging Condition</u>	<u>Free Service (# feet)</u>	<u>Rate of Return Required to Determine Customer Contribution?</u>
Type 1	None	Yes
Type 2	130	Yes, if service length greater than 130'
Type 3	175	Yes, if service length greater than 175'
Type 4	265	Yes, if service length greater than 265'

**NEW HAMPSHIRE** (free service length based on 92 mcf annual consumption)

<u>Digging Condition</u>	<u>Free Service (# feet)</u>	<u>ROR for Customer Contribution?</u>
Type 1	None	Yes
Type 2	50	Yes, if service length greater than 50'
Type 3	75	Yes, if service length greater than 75'
Type 4	180	Yes, if service length greater than 180'

**MAINE** (free service length based on 84 mcf annual consumption)

<u>Digging Condition</u>	<u>Free Service (# feet)</u>	<u>ROR for Customer Contribution?</u>
Type 1	None	Yes
Type 2	None	Yes
Type 3	None	Yes
Type 4	117	Yes, if service length greater than 117'

- To determine the service type and cost when the location of main is unknown, assume the main to be in the center of the road.
- The digging condition field in WOMS (as part of the service installation work order) must be a mandatory entry such that costs by service type can be reviewed. The New Business Construction Supervisor will be responsible for the accurate entry of service digging conditions to the service installation work order.

**SERVICE TYPE DESCRIPTION**

The following service type descriptions are to be used exclusively by sales representatives to perform preliminary cost estimates and determine contribution in aid of construction.

<u>CONDITION</u>		<u>SERVICE TYPE</u>			
		1	2	3	4
Greater than 80% pavement		X			
Between 20% and 80% pavement			X		
Less than 20% pavement or existing sleeve for long side service				X	
Open trench					X

**WEIGHTED AVERAGE COST OF CAPITAL**

**ATTACHMENT 2**

<b>Bay State Gas Consolidated</b>	<b>Percent of Total [1]</b>	<b>Cost Rate</b>	<b>After – Tax Cost Rate [2]</b>	<b>Weighted Average Cost Rate</b>
Long Term Debt	50%	8.41%	5.21%	2.61%
Preferred Stock	0%	0%	0%	0%
Common Equity	50%	12.01%	12.01%	6.01%
Total	100%			8.62%

*Footnotes:*

The Weighted Average Cost of Capital (WACC) is based on the target capital structure and incremental cost of capital as opposed to the existing capital structure and embedded capital cost.

[1] As a matter of record, the existing capital structure at 12/31/99 was LTD 53.23% and Equity 46.77%;

Long Term Debt	\$239,833 million	53.23%
Preferred Stock	\$ 0	0.00%
Common Stock (a)	<u>\$210,699</u>	46.77%
Total	\$450,532	

(a) Common Stock Purchase Acquisition Adjustment (PAA)

Common Stock Equity	\$529,437
Purchase Acquisition Adjustment	<u>\$325,577</u>
Amortization of PAA	\$ 10,140
Amortization of Non Compete	679
Less; Federal Tax	(3,320)
State Tax	<u>( 660)</u>
Amortization of PAA	\$318,738
Common Equity Adjusted for PAA	\$210,699

[2] LTD cost rate based on 10 year Treasury Bond rate of 6.41% (5/12/2000) with a 2% premium to reflect the spread between the 10 Year Treasury and A Rated Utility Bond.

## **GROWTH INVESTMENT EVALUATION FRAMEWORK FOR 2000**

## **ATTACHMENT 1**

GROWTH INVESTMENT	EVALUATION PROCESS	RISK ADJUSTED RATE	TARGET PREMIUM	HURDLE RATE
<b>ON THE MAIN</b> <ul style="list-style-type: none"> <li>Residential with less than 130 feet service required</li> <li>Residential &amp; C&amp;I - “plain vanilla” investments</li> <li>Key Accounts – with a supporting contract [1]</li> <li>Key Accounts – without a supporting contract</li> </ul>	<ul style="list-style-type: none"> <li>Automatic approval</li> <li>Rate of Return (ROR) Analysis required</li> <li>Rate of Return (ROR) Analysis required</li> <li>Rate of Return (ROR) Analysis required</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>8.6%</li> <li>8.6%</li> <li>10.0%</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>1.5%</li> <li>1.5%</li> <li>1.5%</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>10.1%</li> <li>10.1%</li> <li>11.5%</li> </ul>
<b>OFF THE MAIN</b> <ul style="list-style-type: none"> <li>System Expansion – new construction &amp; conversions With supporting contracts</li> <li>System Expansion – no supporting contracts</li> </ul>	<ul style="list-style-type: none"> <li>Project write-up, Rate of Return (ROR) and ROR sensitivity analysis required</li> <li>Projects are <i>unacceptable</i> without contracts</li> </ul>	<ul style="list-style-type: none"> <li>10.0%</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>1.5%</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>11.5%</li> <li>NA</li> </ul>
<b>MULTI - PHASED PROJECTS</b> <ul style="list-style-type: none"> <li>Projects with expected load &amp; customer additions spread over two or more years</li> </ul>	<ul style="list-style-type: none"> <li>Project write-up, Rate of Return (ROR) and ROR sensitivity analysis required</li> </ul>	<ul style="list-style-type: none"> <li>11.4%</li> </ul>	<ul style="list-style-type: none"> <li>1.5%</li> </ul>	<ul style="list-style-type: none"> <li>12.9%</li> </ul>
<b>BEYOND THE METER</b> <ul style="list-style-type: none"> <li>Beyond the Meter Investment (contract required)</li> </ul>	<ul style="list-style-type: none"> <li>Project write-up, Rate of Return (ROR) and ROR sensitivity analysis required</li> </ul>	<ul style="list-style-type: none"> <li>14.2 %</li> </ul>	<ul style="list-style-type: none"> <li>1.5%</li> </ul>	<ul style="list-style-type: none"> <li>15.7%</li> </ul>

[1] Cash flows supported by a contract to be discounted at the lower hurdle rate of 10.1%, cash flows *not* supported by a contract to be discounted at the higher hurdle rate of 11.5%





Bay State Gas Consolidated	Percent of Total [1]	Cost Rate	After – Tax Cost Rate [2]	Weighted Average Cost Rate
Long Term Debt	50%	8.41%	5.21%	2.61%
Preferred Stock	0%	0%	0%	0%
Common Equity	50%	12.01%	12.01%	6.01%
Total	100%			8.62%

Representative Companies	Beta	Estimated WACC
Natural Gas distribution companies	.50 - .75	8.6 – 10.15%
GM, Flour, American Standard, IBM, Gillette, Williams	1.00	11.5%
GE, Honeywell, Maytag	1.25	12.9%
Banks & Financial Service Companies., Technology Companies	1.50	14.3%
Nokia, ETrade, Lycos	2.00	17.1%

<b>Representative Companies</b>	<b>Beta</b>	<b>Estimated Cost of Debt</b>	<b>Estimated Cost of Equity</b>	<b>Estimated WACC</b>
Natural Gas distribution companies	.50 - .75	8.41%	12.0 – 14.8%	8.6 – 10.15%
GM, Flour, American Standard, IBM, Gillette, Williams	1.00	8.41%	17.6%	11.5%
GE, Honeywell, Maytag	1.25	8.41%	20.4%	12.9%
Banks & Financial Service Companies., Technology Companies	1.50	8.41%	23.2%	14.3%
Nokia, ETrade, Lycos	2.00	8.41%	28.8%	17.1%

Project ID / Name	Address	Town	STATUS	Expected Start Date	Expected Completion Date	Estimated Main Costs	Estimated Service Costs	Estimated TOTAL COST
	Nathaniel Way	Exeter	Completed	April 2000	April 2000	\$13,169	\$10,000	\$23,169
	400 High St	Hampton	Authorized	May 2000	May 2000	\$3,887	\$4,610	\$8,497
	Edgewood	Durham	Authorized	May 2000	June 2000	\$54,412	\$28,800	\$83,212
N99C0005	Whipple & Shapleigh	Kittery	Pending	Aug 2000	Sep 2000	\$69,449	\$4,080	\$73,529
<b>SUMMARY:</b> Completed Authorized Pending TOTAL								\$23,169 \$91,709 <u>\$73,529</u> \$188,407

### Residential MCF Standards

Heat				
Square Footage	Apts & Condos	Use per degree day	Homes	Use per degree day
0-800	40 mcf	0.05	60 mcf	0.08
800-1499	45 mcf	0.06	75 mcf	0.10
1500-1999	65 mcf	0.09	90 mcf	0.12
2000-2999	85 mcf	0.11	120 mcf	0.16
3000-3999	see Alex		150 mcf	0.20
4000 +	see Alex		see Alex	

*note: for space heating only-use apt sq. ft. guide*

Base Load	
Base Loads	MCF Standard
water heating	24
cooking	4
clothes drying	3
fireplace	10
generator	0
gas grill	0
pool heater	50

### Residential Service - Standard Customer Offer

Policy Guide - February 15, 2002

Service Type Description	MA	NH	ME
<b>TYPE 1</b> <b>URBAN</b>  Examples: * 80% or more pavement or concrete * Cobblestone * Four or more lanes * Visible ledge	Priced by Operations	Priced by Operations	Priced by Operations
<b>TYPE 2 AND 3</b> Suburban and Rural  Examples: * Less than 80% pavement or concrete * Lawn from sidewalk to building	<b>75 feet free from curb</b> Sales system cost = 1505  <b>Over 75' - customer charge of \$12 per foot</b> Insert total footage here 140 Customer contribution \$780 Sales system cost \$2,285	<b>75 feet free from curb</b> Sales system cost = 1464  <b>Over 75' - customer charge of \$12 per foot</b> Insert total footage here 0 Customer contribution \$0 Sales system cost \$0	<b>35 feet free from curb</b> Sales system cost = 1573  <b>Over 35' - customer charge of \$12 per foot</b> Insert total footage here 0 Customer contribution \$0 Sales system cost \$0
<b>TYPE 4</b> Builder Dig  * Developer must obtain street opening permit. Trench up to and over main. Must have sand for bedding. For work in developments only	<b>250 feet free from curb</b> Sales system cost \$1,425  <b>Over 250' - customer charge of \$7 per foot</b> Insert total footage here 0 Customer contribution \$0 Sales system cost \$0	<b>250 feet free from curb</b> Sales system cost \$1,495  <b>Over 250' - customer charge of \$7 per foot</b> Insert total footage here 0 Customer contribution \$0 Sales system cost \$0	<b>250 feet free from curb</b> Sales system cost \$1,500  <b>Over 250' - customer charge of \$7 per foot</b> Insert total footage here 0 Customer contribution \$0 Sales system cost \$0

No charge footage is measurement from curb to meter location

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE  
THIRD SET OF INFORMATION REQUESTS FROM UWUA LOCAL 273  
D. T. E. 05-27

Date: June 30, 2005

Responsible: Danny G. Cote, General Manager

UWUA-3-54 (Cote, p. 37, l. 6-7) Please describe the extent to which non-Bay State employees (e.g., employees of NiSource, NCSC, or any NiSource affiliate) must sign-off on any types of capital expenditure projects, including a description of the types of projects that may require NiSource/affiliate approval and the job titles of the NiSource/affiliate personnel involved in the approval process.

Response: Please refer to Bay State's Response to DTE-16-9 for Bay State's Capital Approval process.

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE  
SECOND SET OF INFORMATION REQUESTS FROM USWA, AFL-CIO/CLC  
D. T. E. 05-27

Date: June 30, 2005

Responsible: Stephen H. Bryant, President

USWA-2-13: For 1999 to date, provide all documents regarding or relating to the number of full time and part time employees employed at the Call Center. This requests, includes, but is not limited to, the number of full and part-time employees employed at the Call Center for each calendar year.

Response: The following is a list of the number of part-time and full-time employees at the Call Center from 1999 to date:

	Full-Time	Part-Time	Total
1999	48	5	53
2000	77	5	82
2001	67	3	70
2002	59	4	63
2003	58	16	74
2004	64	14	78
2005	61	15	76

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

RESPONSE OF BAY STATE GAS COMPANY TO THE  
SECOND SET OF INFORMATION REQUESTS FROM USWA, AFL-CIO/CLC  
D. T. E. 05-27

Date: June 30, 2005

Responsible: Stephen H. Bryant, President

USWA-2-15: Prior to July 29, 2003, state the number of times Call Center employees were temporarily, and/or repeatedly, transferred between billing, service, and credit. Further, state the grounds therefor.

Response: No records have been kept on the number of times that Call Center employees were temporarily transferred between queues. Prior to July 2003, Billing customer service representatives (CSR's) handled Service calls as well. There were CSR's who exclusively handled Service calls and CSR's who exclusively handled Credit calls. Volunteers from Service and Billing were trained in Credit and were transferred to take credit calls when necessary. Credit CSR's were transferred by seniority to help in Service and Billing when necessary.